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ABSTRACT

The question of why some employers opt to lay off current workers and hire new workers with different skills while other employers retrain and retain their workers was examined. First, the literature on employer-provided training and the role of social capital in the workplace was reviewed. Next, data from a 1994 national employers survey of firms in the manufacturing sector with more than 100 employees (of the 4,633 eligible establishments contacted, 3,358 (73%) responded) were analyzed to test the following hypotheses: (1) retraining should be more common where employers use work systems that rely on social capital (strongly supported); (2) the incidence of retraining should be greater where fixed employment costs are greater (mixed support); (3) retraining should be greater where other employer-provided training is greater (rejected); and (4) employers who retrain at-risk employees do so as part of a general policy of progressive employment practices (not supported). The analysis established that retraining is driven by the goal of preserving the social capital among current employees that is generated by specific systems of work organization. The explanations that retraining is just an employee benefit driven by employer paternalism or is simply part of an overall strategy of investment in training were rejected. A variable correlation matrix is appended. (Contains 59 references.) (MN)

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Social Capital and Retraining Policies[1]

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Abstract

Why some employers churn their workforce – laying off current workers and hiring new ones with different skills when jobs or skill requirements change – while other employers retrain and then retain theirs is, in the current context, an important question affecting job security. The arguments below examine that question and find that retraining is driven by the goal of preserving the social capital among current employees, capital that is generated by specific systems of work organization. Alternative explanations – that retraining is just an employee benefit driven by employer paternalism or is simply part of overall strategy of investment in training – are tested and rejected. The results extend our understanding of the role of social capital in organizational decision-making.

Introduction and Context

Interest in understanding why some jobs are insecure is a central topic in the social sciences and dates back at least to the reform movements of the early days of industrialization (see, e.g., Webb & Webb 1965; Commons 1964). In the contemporary context, corporate restructuring has become the main driver of job insecurity. An American Management Association survey reports, for example, that in the 1990s, 66 percent of the respondents stated that downsizing in their companies was driven by internal restructuring and reengineering, as opposed to what had been traditional explanations based on conditions in the economy (AMA 1997). And roughly a third of all companies reported that they were laying off and hiring new workers at the same time in order to get the new skills they need to accommodate their restructuring plans (AMA 2000).

The alternative to restructuring the workforce through layoffs and hiring, or "churning," is to get the new skills through retraining employees.

The *Robert's Dictionary of Industrial Relations* (1986), which draws its definitions from usage in previous research studies, defines retraining as fundamentally *different* skills made necessary because of some exogenous change in skill requirements. A major drawback to this definition is that it can be very hard to distinguish retraining from the more general skill upgrading that happens routinely in the modern workplace when jobs change. How different do the new skills have to be before regular skill upgrading becomes retraining, for example?

A different and more useful conceptualization of retraining turns on the fact that it embodies a fundamental "make-or-buy" decision; to retrain the otherwise at-risk employees for new or substantially altered jobs or lay them off and hire new workers who already have the skills needed for the new jobs. Retraining, therefore, can be defined as the decision to invest in the skills of workers who would otherwise be at risk of losing their jobs unless they acquire new skills. Jobs may be at risk even where the skill gap is small where it is easier to hire the new skills on the outside market. This definition has the advantage of drawing a conceptual distinction, rather than a point along an empirical continuum, between retraining and more common skill upgrading without requiring an arbitrary assessment of the size of the skill gap. It also focuses attention on the central outcome of retraining, and that is to avoid job loss.

There is ample evidence that employers understand that they face a make-or-buy choice between hiring new skills on the market and retraining existing employees. Practitioner publications, for

example, routinely examine the pluses and minuses of the two options (e.g., Bartholomew 1997, Asbrand 1993.) Public policy attention has also turned to the make-or-buy aspect of the employer's retraining decision, such as California's Employment Training Panel, which provides resources from the unemployment insurance fund for employers to retrain workers who would otherwise be displaced because of shortfalls with changing skill requirements (Osterman & Batt, 1993).

Explaining the Decision to Retrain

A logical place to begin understanding why employers retrain would be with prior findings about retraining, but there is very little research on employer-provided retraining. Aside from proscriptive arguments, actual reports of employer practices suggest considerable diversity in the choice between hiring employees with new skills and retraining the ones they have (Bartholomew 1997). Case studies in Europe, where the retraining option would seem to be advantaged (because of greater restrictions on layoffs), find that recruiting new employees seemed to work better for employers than attempts at retraining existing workers in part because it delivered the new skills so much faster (JEIT 1995). On the other hand, where labor shortages are severe and outside hiring more difficult, employers seem more inclined to retrain current employees, as was the case with the introduction of client/server technology in information technology where 96 percent of firms surveyed engaged in some retraining (Melymuka 1995). In other contexts, however, information systems groups seemed particularly inclined to hire rather than retrain (see, e.g., Moad 1990). Other reports show that firms consider outsourcing as an alternative to retraining (Hoffman 1995), which is just another form of buying skills on the outside market. Reports like these highlight the importance that labor markets play in shaping the decision to retrain by influencing the relative merits of the alternative to retraining, which is

outside hiring.

Prior research related to the more general concept of employer training may also provide some insights. Becker's (1964) now famous work on the financing of employer-provided training asserts that employers would find it difficult to provide any training, let alone retraining, where the skills required for the new or alternative jobs are general skills also useful to competitors. Where the new skills required are specific to the employer, however, employers have to provide them because the option of buying such skills on the market does not exist. Examples of "pure" firm-specific skills are incredibly rare, however. It is easy to assume that the at-risk employees might need less firm-specific skills than new hires, but in many cases, that might not be the case, such as where the new jobs require fundamentally different work attitudes and abilities.

Organization-level studies of employer-provided training take a different approach, emphasizing the possible synergies between the decision to train and other practices. Knoke and Kalleberg (1994), for example, show how characteristics of internal labor markets are related to employer-provided training. In these situations, the decision to train may reinforce the operation of internal labor markets by facilitating internal promotions and helping to retain existing talent. A number of studies relate organizational characteristics such as size (Osterman 1995), capital intensity (Bartel 1989; Lynch & Black 1998), and unionization (Frazis et al. 1995) to training. The factors behind these findings – greater scale economies, opportunities for productivity improvements, and restraints on mobility – enhance the ability to provide training investments of all kinds. Knoke and Janowiec (1998) examine a different make-or-buy training decision – whether training is outsourced or done internally – in part based on complementarities with other

practices and characteristics such as internal labor markets. It is not obvious how retraining relates to regular training, but the notion of synergies with other practices is an attractive direction in which to look.

The Role of Social Capital

A more novel explanation that also relies on the notion of synergies concerns the role of social capital in the workplace. The notion of social capital as articulated by Coleman (1989) emphasizes the potential value of relationships between individuals as a resource for facilitating a range of outcomes. Because it is an asset that exists *between* individuals rather than within each individual, it may shed some light on what appears to be a central puzzle about retraining: why some firms reinvest in individual employees despite the fact that, as individuals, they no longer have the skills to be employable at that firm. Hiring new workers with the new skills may, other things equal, appear to be a better alternative (see below).

There is now a considerable literature on social capital that suggests several mechanisms through which it is created and a range of benefits from it. Space constraints prevent a detailed review of this literature, but a brief summary suggests the following. First, there are different, but not necessarily conflicting, arguments about the source of social capital, all of which focus on the underlying idea of networks of relationships. A somewhat older set of studies emphasizes the value of "weak ties" in the sense of a network of acquaintances and other contacts (Grannovetter 1974). The information and obligations (Bourdieu 1986) created by these networks can be useful to individuals in the labor market and in other activities. Another argument suggests the importance of the structure of network relationships, in particular, whether they provide opportunities for the individuals in them to act as a broker between other individuals or networks

that have little contact but that might benefit from such contact (Burt 1992).

Most of the research on social capital issues emphasizes the benefit of these social relationships to the individuals in them, especially how social capital affects employees within organizations. For example, Granovetter (1974) looks at how networks affect hiring prospects, and Podolny and Baron (1997) find that social ties affect promotion prospects. Some of the original research on social capital went on to suggest how the benefits to individuals aggregate up to social benefits, for example, that communities whose networks facilitate the employment of their members are healthier in related dimensions such as reduced unemployment, crime, etc. (e.g., Coleman 1989).

What has been underrepresented in discussions of social capital are the potential benefits to organizations that result from these social relationships. Krackhardt and Stern 1988 provide an important exception by demonstrating that group performance was higher in situations where there were more cross-group friendships, and Pennings, Lee, and vanWitteloostuijn (1998) show that employee tenure is positively related to organizational survival. Two recent conceptual articles develop new arguments about social capital and organizational outcomes. Leana and Van Buren (1999) argue that social relationships -- broadly defined -- within an organization facilitate trust, which, in turn, makes it easier for the individuals in the organization to define and then enact collective goals. Positive social relations might therefore make it easier to pursue any organizational goal (although negative social relations, such as conflict, presumably would have the opposite effect).

Nahapiet and Ghoshal (1998) take a different approach and suggest how social relationships

within organizations can facilitate the development of intellectual capital by making the internal transfer of knowledge easier. It is an argument presaged by Blau (1955) who showed how advice about tasks in the workplace is passed along social networks. The Nahapiet and Ghoshal argument makes use of the equally large literature on organizational learning, which space constraints make difficult to review in detail. In brief, the argument turns on the importance of tacit knowledge for organizational success (Polyani 1967); how such knowledge is in many ways a characteristic of organizations rather than individuals (Nelson & Winter 1982); and on the considerable research showing how social relations between individuals either facilitate or block that transfer of knowledge (e.g., Weick & Roberts 1993).

These arguments suggest a direct connection between social capital and retraining that turns on the make-or-buy/retrain or hire-and-layoff decision that is fundamental to retraining. If a firm chooses not to retrain, it replaces old employees with new ones. In the process, social networks in the workplace are disrupted, and social capital is destroyed. If it does retrain, it preserves social networks and retains social capital. To the extent that retraining reduces turnover that might otherwise occur, it enhances social capital by retaining social networks. Krackhardt and Porter (1985) illustrate explicitly some of the potential costs to current employees and the organization that stem from layoffs that disrupt social networks. There is also an extensive body of research on the composition of teams and team performance that suggests the value of stability in team roles (Hackman 1990) in part because of the difficulty in getting a good fit between individuals and teams (Klimoski & Jones 1995; more generally West, Borrill & Unsworth 1998). The issue of the composition of teams and its relationship to performance is a topic of growing importance (e.g., Stewart & Barrick 2000). In an economic sense, social capital

can be thought of as a particular type of fixed investment that can be preserved through retraining. One way to think of this relationship is that it may take less of an investment to retrain redundant employees than to hire new ones because the former already have important firm-specific investments in social capital. But the investment is in relationships, not skills.

One problem with the above arguments is that because they appear to suggest that preventing layoffs through retraining is valuable everywhere, they do not per se offer an explanation as to why some employers find it useful to retrain employees and others do not. A simple alternative is just that some situations make social capital more valuable than others. For example, some organizations rely on bureaucratic management and work organization practices based on rigid rules and procedures for decision making that are designed in part to be relatively impervious to social relations and resilient to employee turnover. The classic examples of assembly operations based on the principles of scientific management seem to fit that model in that they eliminate opportunities for social relationships to affect the work process (e.g., Braverman 1974). In such circumstances, social capital should be much less important as a means of getting work done. Work systems based on teamwork and empowered groups, in contrast, rely much more heavily on the social relationships between employees and therefore on social capital to operate effectively. (The considerable proscriptive literature on the requirements of teams asserts that communications and constructive interpersonal relationships are a necessary condition for their success -- see, e.g., Wellins et al. 1994 and Hackman 1990 for a scholarly interpretation.) Much of the benefit of these work systems may also come from the social capital that they generate – the sharing of information and ideas in particular that facilitates organizational learning (see, e.g., Nahapiet & Ghoshal (1998) above). And this leads to the main hypothesis of the study:

H: 1 Retraining Should Be More Common Where Employers Use Work Systems that Rely on Social Capital.

It is also plausible that the causation in the above arguments might be reversed. Firms that are actively engaged in retraining might find it easier to introduce work systems that make greater use of social relationships. The reasons relate to the findings in social capital research concerning "closed networks," that norms and values conducive to getting work done are more easily developed in workplaces and social relations where there is limited entry and exit, in this case, reduced layoffs and subsequent hiring (Coleman 1990). I return to this issue below.

There are other factors that may influence the decision to retrain as well. It is important to consider them if for no other reason than to be certain that we do not attribute any of their influence to the social capital hypothesis above. One potential explanation relates to labor markets and shapes the costs and benefits of the "make or buy" – hire or retrain – decision, and that is the magnitude of the fixed costs associated with hiring and firing employees. Other things equal, employers should find it more efficient to retain and then retrain the existing workforce where those fixed costs are greater, that is, where the alternative of laying off and hiring new workers is more costly. Any hiring costs or dismissal costs, such as severance pay, should encourage employers to pursue the retraining route, other things equal.

H: 2. The incidence of retraining should be greater where fixed employment costs are greater.

A second alternative explanation is simply that there is something about an employer's operation

that creates a comparative advantage in training of all kinds, including retraining. That is, employers who find it cost-effective to provide more traditional training may be more likely to provide retraining as well. It could be, for example, that labor market circumstances, such as an isolated location, encourage all forms of training investments by making it difficult for employees to leave and take training investments with them. Employers who provide greater levels of regular training may therefore also find it easier to provide retraining – either because all forms of training are easier for them to deliver or because greater training proxies firm-specific skills.

H: 3 Retraining should be greater where other employer-provided training is greater.

As noted above, arguments about the benefits of stable employment in terms of individual employee morale and commitment to organizational goals are also a central part of the "best practice" literature in employee relations (e.g., Kochan & Osterman 1994; Pfeffer 1995). The arguments motivating the best practice literature are very much like traditional welfare capitalism arguments in their focus on the attitudes and behaviors of individual employees. They suggest, for example, that norms of obligation or reciprocity are created by employer practices that protect or benefit employees, particularly practices that are not mandated by law or union contracts but that are in some ways voluntary. Employees respond to them with enhanced commitment, greater initiative, and reduced resistance to organizational change efforts (e.g., Osterman 1994, among others).

The argument that employers retrain because it is a "best practice" that improves employee morale and attitudes generally and contributes to performance is complicated, however, because

the basic evidence that employee morale per se contributes to organizational performance is less than compelling (see, e.g., Cotton 1993 for a survey), and new research indicates that employee commitment, the central attribute in this model, may be much less related to the sense of obligation and reciprocity associated with the value of employer contributions than to other factors (see Rodgers 2000 for a survey). Finally, the best practice arguments like those above by themselves do not explain why some employers would pursue retraining while others do not, and several authors suggest that these practices are, more or less, universally useful (e.g., Pfeffer 1995). One could construct an argument, similar to the one presented above, suggesting that some situations offer greater opportunities for employee attitudes to affect organizational performance than others, although it may not be so obvious how to identify those situations. More generally, some employers may pursue practices thought to be good for employees because they have paternalistic ideals; they may be trying to create a sense of obligation to drive improved employee performance; they may be interested in union avoidances through practices that substitute for union provisions; or they may simply follow the best practice literature and its advice. These motivations may be condensed at an aggregate level to the following hypothesis:

H4: Employers who retrain at-risk employees do so as part of a general policy of progressive employment practices.

Data, Variables and Specific Hypotheses

In order to examine these hypotheses, we need data about work practices, technology, and wages, a combination that has been difficult to find in the same data set. A recent establishment-level survey of employment practices conducted by the Bureau of the Census for the National Center on the Educational Quality of the Workforce (EQW) contains such data and allows us to address some of the above questions.

The EQW National Employers Survey was administered by the U.S. Bureau of the Census as a telephone survey in August and September 1994 to a nationally representative sample of private establishments with more than 20 employees. The survey represents a unique source of information on employment practices. It is structured to provide information on all categories of incumbent workers, not just new hires or those in core occupations.

The survey over sampled establishments in the manufacturing sector and establishments with over 100 employees. Public sector employees, not-for-profit institutions, and corporate headquarters were excluded from the sample. Although the survey excluded establishments with fewer than 20 employees (which represent approximately 85 percent of all establishments in the U.S.) the sampling frame represents establishments that employ approximately 75 percent of all workers. The target respondent in the manufacturing sector was the plant manager and in the non-manufacturing sector was the local business site manager. Because the goal is to learn about actual practice in the facility, not about policies, it is more important to have local operating managers respond than corporate officers in human resources. The survey was designed to allow for multiple respondents so that information could be obtained from establishments that kept financial information, for example, in a separate office – typically at corporate headquarters for multi-establishment enterprises. Computer Assisted Telephone Interviewing (CATI) was used to administer each survey, which took approximately 28 minutes to complete.

The sampling frame for the survey was the Bureau of the Census Standard Statistical Establishment file, one of the most comprehensive and up-to-date listings of establishments in

the United States. Of the 4,633 eligible establishments who were contacted by Census, 1,275 refused to participate in the survey. This represents a 72 percent response rate, which is substantially higher than similar establishment surveys. The usual reason given by employers for why they would not participate in the survey was that they did not participate in voluntary surveys or were too busy to participate. Probit analysis conducted by Lynch and Black (1996) of the characteristics of non-respondents indicates that there was no significant pattern at the two-digit industry level in the likelihood of participating in the survey. The only differentiating characteristic of establishments less likely to participate was that manufacturing establishments with more than 1000 employees, 0.1 percent of the sample, were less likely to do so. For the analyses below, we restricted the sample to establishments reporting useable data for all questions used in any of the regressions to ensure that differences across specifications or across different dependent variables do not reflect changes in the sample.

The Dependent Variable

Finding appropriate measures of retraining activity is certainly one of the significant challenges in studying the retraining decision. As noted above, attempting to identify retraining by examining the content of training programs is problematic. A straightforward alternative relying on the definition of retraining outlined above is simply to ask employers directly whether they retrain employees who are otherwise at risk of layoff.

A question in this survey asks: "Does your establishment currently provide retraining opportunities to employees at risk of losing their jobs due to economic conditions?" The phrase "economic conditions" was designed to rule out situations where the potential job loss was within an employee's control, such as that attributable to poor job performance. It is unlikely

that this question is capturing situations where employers are providing assistance in learning new skills to help employees find jobs elsewhere – that is, as a form of outplacement assistance -- because the question asks only about workers who are at risk of job loss and not those who will or have already lost their jobs. Implicit in the question is the assumption that retraining would reduce the risk of job loss.

The question has an important complication that may affect its interpretation, however. Employers who answer "yes" clearly fit the definition of offering retraining. But the interpretation for those who respond "no" is more complicated. A "no" response indicates that they do not retrain workers at risk. But it might possibly mean that the establishment does not offer retraining at present because they currently have no workers at risk, yet they might offer retraining if they did have at-risk employees. As a result, the distinction between those who respond yes and those who respond no does correspond to those employers who do and do not offer retraining, it might not perfectly map onto the distinction between establishments that *would* offer retraining if it was needed and those that *would* not. If the goal is to draw inferences about the characteristics of establishments that currently offer retraining, then this issue presents no problem. But if the goal is the more general one of drawing inferences about the characteristics of establishments that would provide retraining if jobs were at risk, then this problem could generate measurement error in the dependent variable because some of the "no" responses would be incorrectly classified. It is difficult to know the characteristics of this measurement error, but assuming it is classical measurement error, then the results are unbiased although the estimates will have larger standard errors and be less precise.

One solution to the problem would be to have had answers to two separate questions: The first asking whether employees were at risk of layoff and the second asking whether retraining was provided. (This approach is more concrete than asking the hypothetical question as to whether employers would retrain if they had workers at risk.) Retraining could then be estimated conditional on having employees at risk by estimating a system of equations where the first equation was an attempt to model the risk of layoff and the second models the retraining decision conditional on the results of the first equation. The problem with such an analysis, however, is that there is no clear model on which to estimate the risk of layoff. And the risk of layoff in any case is likely to be a continuum where it is not obvious how far along the continuum one needs to be in order to be "at risk" versus not at risk of layoff.

A simpler and more straightforward alternative for addressing the above complication is to rely on two relevant variables in the data set that can be used to restrict the sample in ways that help eliminate the above complication. The first variable measures whether skill requirements for production workers have risen during the past three years (see Table 1). This variable should capture those situations where skill-biased technological change or other developments have raised skill requirements and made existing skills sets obsolete. The second variable addresses a different aspect of the above concern by measuring the extent to which the establishment was operating with excess operating capacity, a proxy for whether layoffs associated with economic conditions were likely (see Table 1). By restricting the sample to those establishments that have seen rising skill requirements and that are operating below capacity, we are likely to eliminate situations where employees did not face changes in skill requirements or in economic conditions that could have put their jobs at risk. We therefore eliminate from the sample the possibility that

some of the establishments responding "no" to the question would have offered retraining but did not because they had no employees at risk of job loss, and the comparison offered by the retraining question can then more easily be interpreted as distinguishing between employers that, if necessary, would offer retraining as defined above and those that would not. Restricting the sample is preferred to simply controlling for these variables because it allows for the restrictions to operate through all of the coefficients and not just through the intercept. In the analyses that follow, we test whether these restrictions matter in practice.

Independent Variables

The first and most important hypothesis concerns investments in social capital generated by an establishment's work systems. We use three variables to measure social capital in the workplace. The first is the percentage of employees operating in self-managed teams. There is considerable evidence that it takes a fair amount of time for such teams to come together and be effective. Communication and social relationships among the team members are central components of success in such teams. It is also clear that changes in the composition of teams – for example, if some team members were laid off – disrupts those social relationships and can damage the functioning of the teams in important ways (Dougherty & Bowman 1995; Hackman 1990; Klimoski & Jones 1995; West, Borrill, & Unsworth 1998). Establishments that make greater use of self-managed teams therefore have more social capital in the form of relationships necessary to allow those teams to operate successfully that would be at risk if employees were laid off.

Similar arguments can be made about total quality management (TQM) programs, which involve employees through team settings in important operating decisions associated with quality and

performance issues. In order to be effective, TQM programs require effective communications both within and across the TQM teams as well as good social relationships. These programs also help generate detailed knowledge about the idiosyncrasies of equipment and production processes. How much of such knowledge is social capital, concerned with the individuals involved, or technical knowledge is unclear, but there is no doubt that social capital is part of the conditions necessary to allow these systems to operate.

One of the complications of using self-managed teams and TQM programs in the same model is that one could argue that they essentially tap the same underlying construct, and that is a team-based arrangement for organizing work where employees must work together to produce results. These variables may both capture some attribute of teamwork other than social capital.

To help address these complications, I include another management practice that generates social capital in ways that are completely unrelated to teamwork or work systems. That practice is flextime, a work scheduling arrangement whereby employees are allowed some latitude in the scheduling of their working hours so long as the overall needs of the workplace are met. A central component of flextime is that it must be negotiated within the workplace in order to meet those needs – if one person wants to come in early, then someone else must agree to stay late in order to cover the work. The work schedule that results is in many ways a delicate balance among the employees, one that is easily disrupted if an individual leaves. If, for example, the employee who agreed to stay late leaves, then the work schedule for the establishment as a whole may have to be renegotiated (an alternative, of course, is to try to hire someone willing to work the same idiosyncratic work schedule as the departed employee). The social capital that exists in

a workplace with flextime is therefore embodied in the work schedule itself as it represents the summation of compromises and negotiations among the employees.

It is also possible that flextime arrangements might require better social relationships among employees than more standard work arrangements in that employees must manage the handoff of tasks across schedules that overlap but do not completely coincide. The advantage of including flextime as a work practice reflecting social capital is that it is clearly different from teamwork and TQM. Because it does not rely on team-based work organization, it provides a test as to whether the construct being considered is truly social capital and not some other characteristic associated with teams. A potential drawback is that because flextime is a progressive employment practice that accommodates employee needs, it may simply identify a progressive employer who is concerned about its employees and who also uses retraining as a means to protect them from job loss. Perhaps flextime also identifies employers interested in pursuing the "best practices" model noted above, that employers protect their workforce in order to generate positive morale.

Fortunately, this potential confounding can be addressed by including other measures of the extent to which an employer is pursuing progressive or best practice employment policies. The other measures capture employee benefits thought to protect employees and improve morale but that do not appear to generate any social capital as described above. These include employer-provided medical and health insurance, profit sharing and stock options, and pensions. Defined benefit pension plans, where the employer agrees to provide a constant pension payment for vested employees, represent a fixed obligation to laid off employees who are vested and creates a

separate incentive to retain vested employees. Other pension plans, such as defined contribution or cash balance plans, do not create such incentives, and unfortunately we cannot tell the nature of the pension plan from these data. Medical and health insurance in particular would seem to be a minimum requirement for progressive employment policies. If employers are pursuing a progressive employment strategy – whether motivated by paternalism, an interest in creating norms of reciprocity, a best-practice agenda, or whatever – that is in fact behind their decision to offer retraining, we should also expect them to be offering these other employee benefits. We should therefore expect to find a positive relationship between these benefits and retraining if retraining is in fact being driven by a progressive agenda. And controlling for these alternative measures of progressive employment practices allows one to see whether a relationship between flextime and retraining is driven by the social capital aspects of flextime. The strongest test would be if we saw positive and significant relationships between flextime and retraining but not between these employee benefits and retraining.

We address the second hypothesis concerning the fixed costs of employment with two variables. The first is whether the employer offers severance payments to laid off employees. Establishments with these payments have a greater incentive to retrain at-risk employees because they must otherwise make payments to those laid off. The second variable measures the employer's expenditures associated with selecting and recruiting employees. These costs reflect something about what the establishment must spend to hire new employees if it does not retrain and then keep its current workers. (Because this measure is total expenditure and not per hire and some of these costs are variable, such as interviewing, it is possible that establishments may have high overall costs in this area yet low costs per hire if they do a great deal of hiring.).

The third hypothesis, that retraining is an integral part of a firm's general approach to training and is driven by the same factors that drive training more generally, is examined using a variable measuring total expenditures on training – formal training because of the difficulty in estimating informal training costs. We want to examine to what extent the incidence of retraining varies with an establishment's overall investments in training. It is also important to control for training expenditures in order to avoid a potentially spurious relationship with the other hypotheses: Other studies have found relationships between employee involvement generally and teamwork systems and formal training perhaps because these practices raise skill demands [e.g., Osterman (1995), Gittleman, Horrigan, & Joyce 1998, and Lynch & Black (1998)]. If retraining is in fact driven by formal training, then one might expect to find a positive – but spurious – relationship between the self-managed team variable and retraining; self-managed teams drive overall training which then drives retraining. Including a measure of overall training investments is important as a control variable, particularly for the first hypothesis about social capital.

The variable measures total expenditures on employee training may also capture something about the fixed costs of employment. Training investments are obviously lost if employees are laid off. Some proportion of past training investments may represent sunk costs in that they were for skills that are now obsolete, but some proportion of training investments surely represents skills that new hires must have, such as orientation and safety training. These expenditures would have to be made again if the employer lays off current workers and replaces them with new ones.

Control Variables

In order to test the above hypotheses, it is important to control for other factors associated with characteristics of the establishments and their employees that might be associated with the above independent variables and that might also shape the retraining decision. The control variables concerning the establishment's characteristics include industry (two-digit SIC code), establishment size (number of employees), employment growth and its square, whether the establishment is part of a larger firm, capital-labor ratios, and value added per employee. These variables capture factors such as the ability to fund training of all kinds as well as factors potentially associated with the potential risk of layoffs. An extensive literature in labor economics examines how the characteristics of the workforce affect training investments. Altonji and Spletzer (1991), for example, show how employee characteristics such as education levels affect the incidence of employer-provided training. Research like this suggests that employer decisions about training might be influenced by the attributes of their current their employees. Control variables concerning workforce characteristics are therefore included; average education of the workforce and the percentage of the workforce that is part-time, temporary, female, represented by a union, and with less than one year of tenure. While it is not obvious that these variables would be correlated with the independent variables, it is important to control for that possibility.

In a separate specification, I add two additional control variables that might affect the risk that employees face of job loss. Plant age may proxy older establishments where capital may also be older. Operations and employees may more likely be redundant in such contexts. The percentage of workers who are rated as fully proficient at their jobs may provide some indication of the extent of the need for retraining. Proficiency is not the same as skill mismatches, although

the two may have some overlap. All of the variables used in our analyses are described in Table 1, which presents their definitions, means, and standard deviations. [Table 1 about here.]

Analyses and Results

Table 2 presents the results of logit regression models estimating the incidence of employer-provided retraining across establishments. Table 2a presents the basic equation. Table 2b adds additional controls for the establishment – the percentage of the production or front-line workforce that is fully proficient at their job and the age of the plant. Table 2c repeats the model in 2a with the sample restricted to establishments with rising skill requirements and excess operating capacity, effectively excluding those where employees might not be expected to be at risk of job loss. The restricted sample eliminates the possible confounding of the "no retraining" response noted earlier. Table 2d repeats the model in 2b using the above sample restriction. [Table 2 about here.]

The results of the equations strongly support the main hypothesis, H: 1, that employers are more likely to retrain employees when they make use of work systems that rely on social capital. All three of the relevant variables are significant at conventional levels, and the TQM and flextime have among the largest coefficients in the equation. The fact that both self-managed teams and TQM are significant is impressive given that TQM programs typically involve teamwork of some kind, generating the potential for colinearity.

The results provide somewhat mixed support for H: 2, that retraining is higher where

establishments have greater fixed employment costs. The presence of severance pay policies is negatively and significantly related to retraining across all specifications. But greater recruiting and training expenditures are not. H: 3, that retraining should be positively associated with overall training investments, is rejected. In fact, in the restricted sample, establishments making greater expenditures on formal training are significantly *less likely* to engage in retraining of at-risk employees. This is especially notable given that expenditures on retraining no doubt are included in the overall measure of total training expenditures. This result supports the view that retraining is different in fundamental ways from more typical training policies. It is possible that employers treat retraining and more typical training investments as substitutes, and no doubt to some extent they are. If employers do not retrain at risk employees and instead replace them with new hires, then the components of training directed at new hires – which may be the bulk of training in most organizations – would actually rise.

Finally, H: 4 suggesting that retraining is a practice associated with progressive employers, is not supported by the results. None of the progressive employee benefits examined are significantly and positively related to retraining, with the exception of stock options for employees in the restricted sample, and the coefficients for several of the other benefits have the wrong sign. The fact that the relationships between retraining and flextime are positive while progressive employee benefits that do not rely on social capital are essentially unrelated to retraining suggest that the former relationships are not driven by any overall progressive employment strategy. Instead, they appear to be driven by social capital.

The potential bias noted above that might be driven by the wording of the retraining question --

employers reporting that they do not retrain employees because, at present, they have none who need it -- does not appear to be an issue. Restrictions on the sample that control for the extent to which employees are at risk of job loss, through the variables measuring rising skill requirements and whether the establishment is operating below capacity in Tables 3b and 3d, do not change the results in any fundamental way.

An issue that we cannot adequately address given the cross-sectional nature of the data is the direction of causation. This issue is relevant only for the hypothesis for which there is some support. For H: 2, the fixed cost hiring and dismissal cost variables, it certainly seems more likely that employers would introduce retraining in response to fixed employment costs that making hiring and firing more difficult than the reverse. It is conceivable that an employer might introduce severance pay after having a policy of retraining precisely because it would not be needed – it is an apparent benefit to employees that would cost nothing because it would not be used. Causation would seem to be more of an issue for the social capital hypothesis. It may seem reasonable for employers to introduce work reform practices like TQM and self-managed teams first because they are practices that fundamentally change the way the workplace operates and then introduce retraining to support them. But it is also possible that employers decide first to retrain their at-risk employees and then, as a result, introduce the practices associated with the social capital variables. It is not obvious why retraining would make an employer more likely to introduce flextime, but arguments about why retraining might make it easier to introduce self-managed teams and TQM presumably turn on the need for stability in teams.

If this argument is true, then employers may think about these relationships as essentially being

simultaneous: retraining and TQM or self-managed teams, for example, should be thought of as a package. If the relationships are simultaneous, however, then the independent variables used in the above models are endogenous and are correlated with the error term. The estimates, as a result, would be biased. One way to examine whether such bias is likely is with a test for endogeneity of the variables. The test used below is a regression-form version of the Hausman Test suggested by Kennedy (1993). This test relies on finding good instrumental variables, which are correlated with the independent variables thought to be endogenous – TQM, self-managed teams, and flextime – but not with the dependent variable, retraining (see Appendix for a correlation matrix). The test generates predicted values for the potentially endogenous independent variables using the instruments. These predicted values are then added to the equation. If they are (jointly) significant, then it suggests that the independent variables are likely to be endogenous and, in this case, the relationships simultaneous.

The instrumental variables used for the three independent variables measuring social capital were whether the establishment used 1. job rotation, 2. pay for skill, 3. job sharing, 4. the number of management levels in the establishment, and 5. the ratio of subordinates to first-line supervisors. The relationship between the predicted values from the instruments and the logit model of retraining is jointly insignificant (Chi-Square = 1.2; p = .00), suggesting that the relationship between the three independent variables used to measure social capital and retraining is not endogenous. It is important to note, however, that alternative specifications of this test, different combinations of instrumental variables and different sample restrictions, can yield different results and that there are a great many possible alternative specifications. (Details of these test results are available on request.)

Conclusions

A new challenge to job security appears to be organizational restructurings of the kind that cause some employers to "churn" their workforce, laying off old workers with redundant skills and hiring new ones. Retraining redundant employees to handle the new positions represents an alternative approach that seems to be a crucial component of efforts to stabilize jobs. The decision to retrain does not appear to be related to the use of other progressive employment policies, however, nor to decisions about overall investments in training. Instead, it seems closely linked to practices that generate social capital among employees. This result extends our understanding of the role of social capital into new areas, specifically, illustrating its influence on how organizations make decisions about employment practices, and it helps explain what motivates employers to be "good" in the modern era.

Bibliography

American Management Association, 1997. 1997 American Management Association Downsizing Survey. New York: AMA Research.

American Management Association, 2000. 2000 American Management Association Survey Staffing and Structure. New York: AMA Research.

Althauser, R. P. and A. L. Kalleberg. 1981. Firms, occupations, and the structure of labor markets: A conceptual analysis. In I. Berg (Ed.). Sociological perspectives on labor markets. New York: Academic Press.

Altonji, J. G. and J. R. Spletzer. 1991. Worker characteristics, job characteristics, and the receipt of on-the-job training. Industrial and Labor Relations Review, 45(1): 58-79.

Asbrand, D. 1993. Downsizing poses a delicate staffing question: Should corporations retrain or replace their mainframe support employees? Infoworld, 15(9): 47.

Baron, J. N., A. Davis-Blake, and W. T. Bielby. 1986. The structure of opportunity: How promotion ladders vary within and among organizations. Administrative Science Quarterly, 31 (2): 248-273.

Bartel, A. 1989. Formal employee training programs and their impact on labor productivity: Evidence from a human resource survey. Cambridge, MA: National Bureau of Economic Research working paper no.3026.

Bartholomew, D. 1997. To retrain or not to retrain? Industry Week. 246(16): 48. Sep 1.

Becker, G. S. 1964. Human capital: A theoretical and empirical analysis with special reference to education. Chicago: University of Chicago Press.

Blau, P. M. 1955. The dynamics of bureaucracy: A study of interpersonal relationships in two

government agencies. Chicago: University of Chicago Press.

Bourdieu, P. 1986. The forms of capital. In J.G. Richardson (ed.). Handbook of theory and research for the sociology of education, 241-258. New York: Greenwood Press.

Braverman, H. 1974. Labor and monopoly capital: The degradation of work in the twentieth century. New York: Monthly Review Press.

Burt, R. S. 1992. Structural Holes. Cambridge, MA: Harvard University Press.

Cappelli, P. 2000. Examining the employer's decision to downsize and its effect on establishment performance. In D. Neumark (Ed.). On the job: Are lifetime jobs disappearing? New York: Russell Sage.

Coleman, J. S. Social capital in the creation of human capital. 1988 American Journal of Sociology, 94: S95-S120.

Commons, J. R. 1964. Labor and administration. New York, NY: A.M. Kelley.

Cotton, J.L. 1993. Employee involvement: Methods for improving performance and work attitudes. Newbury Park, CA: Sage.

Doeringer, P. B. and M.J. Piore. 1971. Internal labor markets and manpower analysis. Lexington, MA: D.C. Heath.

Dougherty, D. and E. H. Bowman. 1995. The effects of organizational downsizing on product innovation. 37(4): 28-44.

Dyer, L., F. Foltman, and G. Milkovich. 1985. Contemporary employment stabilization practices. In T.A. Kochan and T.A. Barocci. Boston: Little, Brown.

Farber, H.S. 1997. The changing face of job loss in the United States, 1981-1993. Brookings Papers on Economic Activity: Microeconomics (1997).

Frazis, H. J., D. E. Herz, and M .W. Horrigan. 1995. Employer-provided training: Results from

a new survey. Monthly Labor Review,118(5): 3-17.

Freeman, P. and W. Aspray. 1999. The supply of information technology workers in the United States. Washington, D.C.: Computing Research Association.

Gittleman, M., M. Horrigan, and M. Joyce. 1998. "Flexible" workplace practices: Evidence from a nationally representative survey. Industrial and Labor Relations Review, 52(1):

Granovetter, M. S. 1973. The strength of weak ties. American Journal of Sociology, 78:1360-1380.

Granovetter, M. S. 1974. Getting a job. Cambridge, MA: Harvard University Press.

Hackman, R. (ed.) 1990. Groups that work (and those that don't): Creating conditions for effective teamwork. San Francisco: Jossey-Bass.

Hoffman, T. 1995. Retraining, outsourcing rule the roost at Chase. Computerworld. 29(40) 93 October.

Journal of European Industrial Training (JEIT). Recruitment preferred to retraining. 19(11): iii. 1995.

Klimoski and Jones. 1995. Staffing for effective group decision making. In Guzzo and Salas (Eds.). Team effectiveness and decision making in organizations. San Francisco: Jossey-Bass.

Knoke, D. and A. L. Kalleberg. 1994. Job training in U.S. organizations. American Sociological Review, 59:537-546.

Knoke, D. and L. Janowiec. 1998. Make or buy? The externalization of company job training. University of Minnesota Department of Sociology manuscript, January.

Kochan, T.A. and P. Osterman. 1994. The mutual gains enterprise: Forging a winning partnership among labor, management, and government. Boston: Harvard Business School Press.

Krackhardt, D. and R. N. Stern. 1988. Informal networks and organizational crisis: An experimental simulation. Social Psychological Quarterly, 51:123-140.

Krackhardt, D. and L. W. Porter. 1985 When friends leave: A structural analysis of the relationship between turnover and stayer's attitudes. Administrative Science Quarterly, 30: 242-261.

Leana, C.R. and H. J. Van Buren, III. 1999. Organizational social capital and employment relations. Academy of Management Review.

Lynch, L. and S. E. Black. 1998. Beyond the incidence of employer-provided training. Industrial and Labor Relations Review, 52(1): 64-81.

Lynch, L and S.E. Black. 1996. Beyond the Incidence of Employer Provided Training: Evidence from a National Employers Survey. Cambridge, MA: NBER Working Paper.

Melymuka, K. 1995. The school of hard knocks. Computerworld, 29(28): 97-99..

Mills, D. Q. 1988. The IBM lesson: The profitable art of full employment. New York: Times Books.

Moad, J. 1990. It's time to retrain! Datamation, 36(15): 20-24.

Nahapiet, J. and S. Ghoshal.1998. Social capital, intellectual capital, and the organizational advantage. Academy of Management Review, 23(2): 242-266.

Nelson, R.R. and S.G. Winter. 1982. An evolutionary theory of economic change. Boston: Belknap Press.

Osterman, P. 1984. White-collar internal labor markets. In Paul Osterman (Ed.). Internal labor markets. Cambridge, MA: MIT Press.

Osterman, P. 1994. Internal labor markets: Theory and change." In C. Kerr and P. Staudohar (Eds.). Labor economics and industrial relations: markets and institutions. Cambridge, MA: Harvard University Press.

Osterman, P. 1995. Skill, training, and work organization in American establishments. Industrial Relations, 34(2): 125-146.

Osterman, P. and R. Batt. 1993. Employer-centered training for international competitiveness: Lessons from state programs. Journal of Policy Analysis and Management, 12(3): 456-477.

Pennings, J .M., K. Lee, and A. vanWitteloostuijn. 1998. Human capital, social capital, and firm dissolution. Academy of Management Journal, 41(4): 425-440.

Pfeffer, J. 1994. Competitive advantage through people. Boston, MA: Harvard Business School Press.

Podolny, J. M. and J. N. Baron. 1997. Resources and relationships: social networks and mobility in the workplace. American Sociological Review, 62 (October): 673-693.

Polyani, M. 1967. The tacit dimension. London: Routledge, and Keegan Paul.

Rodgers, R. 2000. Commitment-based employment relationships and high performance work systems: A theory-driven research strategy to bring the traditional concepts in line with the empirical evidence. Singapore: National University of Singapore Faculty of Business Administration Working Paper.

Stewart, G. L. and M. R. Barrick. 2000. Team structure and performance: Assessing the mediating role of intrateam process and the moderating role of task type. Academy of Management Journal, 43(2): 135-148.

Veneri, C. M. 1998. Here today, jobs of tomorrow: Opportunities in information technology. Occupational Outlook Quarterly, 42(3): 44-57.

Walton, R. E. 1985. From control to commitment in the workplace." Harvard Business Review, March-April: 77-84.

Webb, S. and B. Webb. 1965. Industrial democracy. New York, NY: A.M. Kelley.

Weick, K. E. and K. H. Roberts. 1993. Collective Mind in Organizations: Heedful Interrelating on Flight Decks. Administrative Science Quarterly, 38: 357-381.

Wellins, R. S., W. C. Byham, and G. R. Dixon. 1994. Inside teams: How 20 world-class organizations are winning through teamwork. San Francisco: Jossey-Bass.

West, Borrill, and Unsworth. 1998. Team effectiveness in organizations. In Cooper and Robertson (Eds.). International Review of Industrial/Organizational Psychology. New York: John Wiley, Volume 13.

Table 1: Variable Definitions, Means, and Standard Deviations

Variable	Definition	Full Sample		Restricted Sample Rising Skill & Below Capacity	
		Mean	S.D.	Mean	S.D.
Retraining	= 1 if "establishment currently provide[s] retraining opportunities to employees at risk of losing their jobs due to economic conditions?" = 0 if not.	0.356		0.384	
Selfmgmt	"Percentage of non-managerial and non-supervisory employees [who] are currently involved in self-managed teams."	12.0	24.7	18.0	30.7
TQM	= 1 if establishment has "adopted a formal Total Quality Management program," else = 0.	0.344		0.429	
Flextime	= 1 if establishment has flextime, else = 0.	0.383		0.456	
Severance	= 1 if establishment's "employees are covered by ... Severence Plan," else = 0	0.253		0.324	
Recruit	"Percentage of total labor costs spent annually on the recruitment and selection of employees for [the] establishment."	3.8	6.0	4.3	6.0
Training	"Percentage of total annual labor costs spent on formal training programs."	5.1	7.4	5.4	7.4
Overcap	= 1 if "establishment is currently operating above capacity;" else = 0.	0.060		0	
Belowcap	= 1 if "establishment is currently operating below capacity;" else = 0. [Left-out category is "at or near capacity."]	0.337		1	
Skillup	= 1 if "in the last 3 years, ...the skills required to perform production or support jobs [for non-manufacturing, "primary or front-line services or support jobs"] at an acceptable level have ... increased in [the] establishment;" else = 0.	0.548		1	
Skilldown	= 1 if "skills required...", as above, have "decreased;" else = 0. ["Remained the same" is the omitted category.]	0.056		0	
Medical	= 1 if establishment's "employees are covered by Medical or health insurance," else = 0	0.894		0.927	
Profit	= 1 if "company [has] a profit sharing, bonus or gain-sharing plan for any of the following cagegories of workers:" "Technicians; Office/ clerical/sales/customer service [for non-manufacturing establishments, "Office/clerical"]; or Production [Sales/customer services or other front-line employees];" else = 0.	0.530		0.631	
Profitmgr	= 1 if profit sharing, bonus, or gain-sharing, as above, for either or both of "Managers," and "Supervisors" categories.	0.721		0.803	
Stockoption	= 1 if establishment's "employees are covered by ... Stock options," else = 0	0.168		0.146	
Famleave	= 1 if establishment's "employees are covered by ... Family leave," else = 0	0.620		0.639	
Multiemp	= 1 if establishment is part of a multi-establishment firm, else = 0.	0.510		0.491	

			415		599
Employment	Total employment at the end of 1996--defined as the maximum of (a) response to question asking the "total number of workers on your payroll," and (b) the sum of the responses to three questions asking for the respective numbers of "full-time workers," "part-time workers," and "temporary or contract workers."	119	[illegible]	159	[illegible]
Emp	Logarithm of employment.	4.0	1.0	4.0	1.1
EmpSq	Variable lemp squared (i.e., squared after taking the logarithm).	16.8	9.2	17.6	10.5
EmpChange	The "percentage [by which] employment changed," if, "in the past three years, the number of employees at [the] establishment increased or decreased," else zero.	5.7	31.8	4.6	22.5
EmpChange Sq	The signed square of empgr3p.	75.9	1224.9	23.0	217.2
Education	The average number of years of education of the workforce--share-weighted average of average education for 5 occupational categories (see pshwkr and pshrms, above).	12.7	1.1	12.8	1.0
Parttime	Number of part-time employees as a percentage of TOTEMP	21.2	29.1	18.1	28.8
Temp	Number of temporary help workers	177.8	7.9	2.4	10.2
Women	"Percentage of full-time employees [who] are…women."	42.6	30.3	43.7	27.1
Union	= 0 if establishment is not "represented by a union or unions," else equal to the "percentage of [establishment's] employees covered by a collective bargaining agreement."	8.3	24.2	10.3	26.7
Tenure	"Percentage of [establishment's] currently employed workers [who] have been with the firm for less than one year."	21.7	21.6	17.4	20.6
Proficient	Percentage of establishment's workers regarded "as being fully proficient at their job."	80.0	19.8	75.9	21.3
Age	Logarithm of 1995 minus "In what year did you begin operations in this location (if before 1900, enter 1900)."	2.6	0.8	2.5	0.8
1990Age	Dummy variable equal to 1 if began operations at this location in or after 1990.	0.137		0.153	

Means and standard deviations are weighted by the sampling weights used in the regressions in Table 3.

Table 2 Logit Models Of Training Incidence

Table 2a: Full Sample

Table 2b: Full Sample Adding % Proficient and Establishment Age.

3.

3

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Number of obs =	1458
Chi2(46) =	[redacted]
Prob > chi2 =	0.000
Pseudo R2 =	0.231
Log Likelihood =	-730.52

Variable	Coef.	Std. Err.	z	P>|z|
Selfmng	0.010	0.004	2.37	0.02
TQM	0.965	0.262	3.68	0.00
Flextime	0.726	0.253	2.86	0.00
Severance	0.808	0.291	2.78	0.01
Recruit	0.018	0.025	0.72	0.48
Training	-0.019	0.019	-1.00	0.32
Overcap	-0.470	0.506	-0.93	0.35
Belowcap	-0.360	0.264	-1.37	0.17
Skillup	0.625	0.276	2.27	0.02
Skilldn	0.203	0.694	0.29	0.77
Medical	-0.220	0.485	-0.45	0.65
Profit	-0.449	0.336	-1.34	0.18
Profitmgr	0.066	0.360	0.18	0.85
Stock	0.068	0.356	0.19	0.85
Familyleave	0.467	0.311	1.50	0.13
Mult	0.069	0.256	0.27	0.79
Employment	1.273	0.608	2.09	0.04
EmploymentSq	-0.118	0.060	-1.96	0.05
EmpChange	-0.018	0.007	-2.46	0.01
EmpChangeSq	0.038	0.013	2.99	0.00
Education	-0.087	0.117	-0.74	0.46
Parttime	-0.006	0.006	-0.93	0.35
Temp	-0.010	0.009	-1.05	0.29
Women	0.012	0.006	2.17	0.03
Union	0.000	0.005	0.07	0.95
Tenure	0.011	0.007	1.49	0.14

Number of obs =	1458
chi2(49) =	[redacted]
Prob > chi2 =	0.000
Pseudo R2 =	0.237
Log Likelihood =	-724.60

Variable	Coef.	Std. Err.	z	P>|z|
Selfmng	0.010	0.004	2.38	0.02
TQM	0.978	0.265	3.70	0.00
Flextime	0.787	0.250	3.15	0.00
Severance	0.755	0.273	2.77	0.01
Recruit	0.016	0.025	0.64	0.52
Training	-0.022	0.019	-1.14	0.25
Overcap	-0.506	0.500	-1.01	0.31
Belowcap	-0.423	0.265	-1.60	0.11
Skillup	0.602	0.275	2.19	0.03
Skilldn	0.183	0.700	0.26	0.79
Medical	-0.203	0.469	-0.43	0.67
Profit	-0.445	0.323	-1.38	0.17
Profitmgr	0.052	0.348	0.15	0.88
Stock	0.129	0.346	0.37	0.71
Familyleave	0.424	0.311	1.37	0.17
Mult	0.031	0.258	0.12	0.90
Employment	1.276	0.601	2.12	0.03
EmploymentSq	-0.121	0.059	-2.03	0.04
EmpChange	-0.018	0.007	-2.44	0.02
EmpChangeSq	0.037	0.013	2.98	0.00
Education	-0.085	0.117	-0.73	0.47
Parttime	-0.005	0.006	-0.83	0.41
Temp	-0.009	0.010	-0.97	0.33
Women	0.013	0.006	2.27	0.02
Union	0.001	0.005	0.19	0.85
Tenure	0.008	0.007	1.07	0.28
Proficiency	-0.012	0.007	-1.77	0.08
Age	0.145	0.183	0.79	0.43
Age1900	0.286	0.487	0.59	0.56

Table 2c: Restricted Sample: Below Operating Capacity and Worker Skill Requirements Rising

Number of obs =	322
chi2(45) =	[redacted]
Prob > chi2 =	0.901
Pseudo R2 =	0.399
Log Likelihood =	-128.89

	Coef.	Std. Err.	z	P>|z|
Selfmng	0.026	0.008	3.07	0.00
TQM	0.974	0.442	2.21	0.03
Flextime	1.087	0.545	2.00	0.05
Severance	-1.304	0.589	-2.21	0.03
Recruit	0.089	0.060	1.47	0.14
Training	-0.118	0.050	-2.33	0.02
Medical	0.445	1.268	0.35	0.73
Profit	-0.065	0.592	-0.11	0.91
Profitmgr	-0.586	0.659	-0.89	0.37
Stock	1.309	0.592	2.21	0.03
Familyleave	0.081	0.482	0.17	0.87
Multi	0.976	0.545	1.79	0.07
Employment	0.499	0.930	0.54	0.59
EmploymentSq	-0.035	0.088	-0.40	0.69
EmpChange	-0.060	0.017	-3.47	0.00
EmpChangeSq	0.229	0.124	1.85	0.06
Education	0.529	0.235	2.25	0.03
Parttime	-0.010	0.014	-0.72	0.47
Temp	-0.006	0.020	-0.30	0.77
Women	0.028	0.011	2.51	0.01
Union	-0.011	0.010	-1.10	0.27
Tenure	0.008	0.016	0.50	0.62

41

Table 2d: Restricted Sample: Below Capacity and Worker Skill Requirements Rising Add % Proficient and Establishment Age

Number of obs =	322
chi2(45) =	[redacted]
Prob > chi2 =	0.001
Pseudo R2 =	0.400
Log Likelihood =	-128.59

Variable	Coef.	Std. Err.	z	P>|z|
Selfmng	0.027	0.009	3.02	0.00
TQM	0.949	0.441	2.15	0.03
Flextime	1.030	0.554	1.86	0.06
Severance	-1.279	0.574	-2.23	0.03
Recruit	0.090	0.058	1.55	0.12
Training	-0.110	0.049	-2.26	0.02
Medical	0.412	1.284	0.32	0.75
Profit	-0.073	0.599	-0.12	0.90
Profitmgr	-0.512	0.662	-0.77	0.44
Stock	1.334	0.585	2.28	0.02
Fam leave	0.015	0.489	0.03	0.98
Mult	0.978	0.544	1.80	0.07
Employment	0.602	0.951	0.63	0.53
EmploymentSq	-0.048	0.090	-0.53	0.60
EmpChange	-0.059	0.018	-3.32	0.00
EmpChangeSq	0.228	0.123	1.86	0.06
Education	0.553	0.241	2.30	0.02
Parttime	-0.009	0.014	-0.64	0.52
Temp	-0.004	0.021	-0.19	0.85
Women	0.028	0.011	2.52	0.01
Union	-0.011	0.011	-1.01	0.31
Tenure	0.007	0.017	0.42	0.68

42

Proficiency	-0.002	0.012	-0.20	0.85
Age	0.145	0.403	0.36	0.72
Age1900	-0.185	0.993	-0.19	0.85

Appendix Variable Correlation Matrix

	Retraining	Selfmng	TQM	Flextime	Severance	Recruit	Training	Medicals	Profit
Selfmng	0.136	1							
TQM	0.279	0.103	1						
Flextime	0.251	0.180	0.139	1					
Severnce	0.269	0.089	0.145	0.099	1				
Recruit	0.158	0.102	0.241	0.118	0.067	1			
Training	0.109	0.080	0.149	0.120	0.115	0.352	1		
Medical	-0.013	0.014	0.070	-0.041	0.200	-0.103	-0.097	1	
Profit	-0.087	0.025	0.080	-0.056	0.029	-0.061	-0.009	0.298	1
Profitmgr	0.009	0.039	0.166	0.012	0.039	0.058	-0.096	0.173	0.594
Stock	0.158	0.039	0.334	0.038	0.220	0.164	0.149	0.155	0.080
Familyleave	0.218	0.091	0.199	0.065	0.309	0.112	0.191	0.076	0.108
Overcap	-0.037	0.015	0.030	-0.038	0.025	0.000	0.045	0.045	0.087
Belowcap	-0.047	0.114	-0.027	0.060	0.002	-0.054	-0.029	0.013	0.094
Skillup	0.159	0.086	0.139	0.169	0.104	0.119	0.064	0.113	0.091
Skilldn	0.043	0.085	-0.037	0.117	0.092	-0.008	0.187	0.079	-0.040

	Profitmgr	Stock	Familyleave	Overcap	BelowCap	Skillup
Stock	0.196	1				
Familyleave	-0.006	0.2	1			
Overcap	0.030	0.057	-0.005	1		
Belowcap	-0.043	-0.114	-0.055	-0.180	1	
Skillup	0.152	0.074	0.048	0.080	-0.058	1
Skilldn	-0.115	0.057	0.016	-0.044	0.226	-0.2674

N= 1458